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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,397	01/20/2004	Jian Li	42P11578D	3305
8791	7590	08/15/2005	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			TRINH, MICHAEL MANH	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/761,397

Applicant(s)

LI ET AL.

Examiner

Michael Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-22 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

\*\*\* This office action is in response to filing of the application on January 20, 2004. Claims 1-16 and 27-29 were canceled. Claims 17-26 are pending.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 17,21,22 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi (JP 63293729).

Yamaguchi teaches a process of making a storage device comprising: forming a first electrode 2 on a substrate (English Abstract; Fig 2); forming a first organic adhesion layer 3 over the substrate and over the first electrode; forming a ferroelectric polymer structure 1 over the first organic adhesion layer 3 (Figs 1-3); forming a second organic adhesion layer 3 above and on the ferroelectric polymer structure 1; and forming a second electrode 4 above the second organic adhesion layer 3 (Fig 2; English abstract). Re claim 21, wherein depositing a hexamethyldisilazane (HMDS) composition over the substrate is also taught by Yamaguchi (English abstract). Re claim 22, wherein forming a first protective film 3 over the first electrode 2; and forming a second protective film 4 above and on the second organic adhesion layer 3 (Fig 2; English abstract).

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 18-20,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (JP 63293729) taken with Van der Spiegel et al (5,254,504).

Yamaguchi teaches a process of making a storage device as applied to claims 17, 21, and 22 above, wherein forming a first organic adhesion layer 3 over the substrate and over the first electrode; forming a ferroelectric polymer structure 1 over the first organic adhesion layer 3 (Figs 1-3); forming a second organic adhesion layer 3 above and on the ferroelectric polymer structure 1 (Fig 2; English abstract).

Re claims 18-20, Yamaguchi does not teach spin-on deposition for depositing the organic adhesion and the ferroelectric polymer layers; and Re claim 24 for rotational range and time.

However, Van der Spiegel teaches (at col 5, lines 25-60) spin-on deposition for depositing a plurality of polymer layers, wherein, re claim 24, spinning on for deposition is in a rotational range from about 2000-6000 RPM for a time period about from 20 seconds.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit the organic adhesive layers and the ferroelectric polymer of Yamaguchi by employing the spin-on deposition technique, as taught by Van der Spiegel. This is because of the desirability to form uniform ferroelectric polymer layers having a desired thickness across the substrate. Also, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's rotational range and time period for spin coating polymer layers having a desired thickness on the substrate, as taught by Van der Spiegel, which is overlapped and within the range of applicant's claims, because it has been held to be obvious to select a value in a known range by

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optimization for the best results, and would be an unpatentable modification, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". *In Re Aller* 104 USPQ 233,255 (CCPA 1955); *In re Waite* 77 USPQ 586 (CCPA 1948); *In Re Swanson* 56 USPQ 372 (CCPA 1942).

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (JP 63293729) taken with Furukawa (5,238,636).

Yamaguchi teaches a process of making a storage device as applied to claims 17, 21, and 22 above, wherein forming a first organic adhesion layer 3 over the substrate and over the first electrode; forming a ferroelectric polymer structure 1 over the first organic adhesion layer 3 (Figs 1-3); forming a second organic adhesion layer 3 above and on the ferroelectric polymer structure 1 (Fig 2; English abstract).

Yamaguchi does not list all polymer structure as recited in claim 25.

However, Furukawa teaches (at col 5, lines 28-57) a group of polymer structure including at least including polyethylene, polyacrylonitrile, polyvinyl chlorine, polyvinyl fluoride, polyethylene chloride, polyethylene fluorides, polyamides, copolymers and combinations thereof.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the ferroelectric polymer of Yamaguchi by selecting a structure from the group of polymer structure as taught by Furukawa above. This is because these polymer structures are alternative and art recognized equivalent polymer structure for substitution, wherein these polymers are having good properties and chemical stability.

6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (JP 63293729) taken with Summerfelt (6,117,689).

Yamaguchi teaches a process of making a storage device as applied to claims 17, 21, and 22 above, wherein forming a first organic adhesion layer 3 over the substrate and over the first electrode; forming a ferroelectric polymer structure 1 over the first organic adhesion layer 3 (Figs 1-3); forming a second organic adhesion layer 3 above and on the ferroelectric polymer structure 1 (Fig 2; English abstract).

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Yamaguchi does not teach forming a first protective layer above and on the first electrode in a damascene structure in the substrate.

However, Summerfelt teaches (at Figs 16a-16e,5; col 11, line 50 through col 12; Figs 2-5; col 4, lines 26-67) forming a first protective layer (64 in Fig 16; 42 in Fig 5) above and on the first electrode 50 in a damascene structure in the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first electrode of Yamaguchi by forming a first protective layer on the first electrode the damascene structure, as taught by Summerfelt. This is because of the desirability to form on the first electrode the first protective layer as a barrier layer for oxidation preventing.

***Allowable Subject Matter***

7. Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

The references of record including Yamaguchi (JP 63293729), alone or in combination, do not fairly anticipatively disclose or make a prima facie obvious case of the claimed method comprising all process limitations as claimed in base claim with the inclusion of claim 23, wherein forming a ferroelectric polymer structure over the first organic adhesion layer further comprises: forming a first crystalline ferroelectric polymer layer over the first organic adhesion layer; forming a spin-on ferroelectric polymer layer over the first crystalline ferroelectric polymer layer; and forming a second crystalline ferroelectric polymer layer over the spin-on polymer layer.

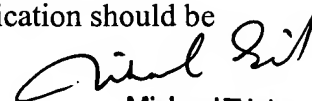
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Trinh whose telephone number is (571) 272-1847. The examiner can normally be reached on M-F, 9:00 Am to 5:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0956.

Oacs-17

  
Michael Trinh  
Primary Examiner